

WHAT IS CLAIMED IS:

1. A method for controlling bandwidth allocations, the method comprising:
- receiving bandwidth metrics for a destination site from a scheduler;
- determining utilization associated with the destination site based upon the
- 5 received bandwidth metrics;
- computing a difference between the determined utilization and a target utilization;
- computing a correction value based upon the difference between the determined utilization and the target utilization, the correction value being associated
- 10 with the destination site;
- outputting a control value based upon a reference control value and the correction value; and
- allocating bandwidth based upon the control value.
2. The method according to Claim 1, wherein the reference control value in
- 15 the outputting step is based upon a current limit value that is active during a measurement period of the bandwidth metrics.
3. The method according to Claim 1, further comprising:
- correlating the control value with the received bandwidth metrics.
4. The method according to Claim 3, wherein the correlating step comprises:
- 20 generating a control sequence number corresponding to the control value.
5. The method according to Claim 1, further comprising:
- 112^{not} reading the control sequence number associated with the measurement period, the control sequence number being included in a metric message that contains the bandwidth metrics.
- 25 6. The method according to Claim 1, further comprising:

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storing the control value, wherein the control value is indexed by the control
11 2 sequence number.

7. The method according to Claim 1, wherein the reference control value in
the outputting step is stored in a control storage, the reference control value having an
5 index based upon a round-trip control time (RTCT), the RTCT being a time between
sending of the control value and a subsequent control value.

8. The method according to Claim 7, wherein the RTCT includes propagation
delay, message transmit/receive delays, and message processing delay.

9. The method according to Claim 7, further comprising:
10 sending the control value on a predetermined interval, the index being based
upon a ratio of the RTCT and the predetermined interval.

10. The method according to Claim 7, further comprising:
sending the control value to a traffic control processing logic that is located
remotely from the scheduler.

15 11. The method according to Claim 1, wherein the correction value in the step
of computing the correction value is further based upon a split gain that specifies at
least one of a first gain and a second gain based upon the computed difference.

12. The method according to Claim 1, wherein the correction value in the step
of computing the correction value is further based upon a unity gain.

20 13. A communication system for controlling bandwidth allocations,
comprising:

a scheduler configured to generate bandwidth metrics for a destination site;

and

a traffic control processing logic configured to receive the bandwidth metrics,
25 the traffic control processing logic comprising,

a utilization module configured to determine utilization associated with the destination site based upon the received bandwidth metrics,

an error calculation module configured to compute a difference between the determined utilization and a target utilization,

5 a gain and filtering module configured to compute a correction value based upon the difference between the determined utilization and the target utilization, the correction value being associated with the destination site, and

an adder configured to output a control value based upon a reference control value and the correction value; and

10 a bandwidth control processor configured to perform bandwidth allocation based upon the control value.

14. The system according to Claim 13, wherein the reference control value is based upon a current limit value that is active during a measurement period of the bandwidth metrics, the current limit value being received by the traffic control
15 processing logic.

15. The system according to Claim 14, wherein the gain and filtering module generates a control sequence number corresponding to the control value.

16. The system according to Claim 15, wherein the scheduler reads the control sequence number associated with the measurement period, the control
20 sequence number being included in a metric message that contains the bandwidth metrics.

17. The system according to Claim 15, wherein the traffic control processing logic further comprises:

a control storage configured to store the control value, the control value being
25 indexed by the control sequence number.

18. The system according to Claim 15, wherein the reference control value is stored in the control storage, the reference control value having an index based upon a round-trip control time (RTCT), the RTCT being a time between sending of the control value and a subsequent control value.

5 19. The system according to Claim 18, wherein the RTCT includes propagation delay, message transmit/receive delays, and message processing delay.

20. The system according to Claim 18, wherein the control value is sent to the traffic control processing logic on a predetermined interval, the index being based upon a ratio of the RTCT and the predetermined interval.

10 21. The system according to Claim 13, wherein the scheduler resides in a payload of a satellite and the traffic control processing logic is located remotely from the satellite.

22. The system according to Claim 13, further comprising a switch.

15 23. The system according to Claim 13, wherein the correction value is further based upon a split gain that specifies at least one of a first gain and a second gain based upon the computed difference.

24. The system according to Claim 13, wherein the correction value is further based upon a unity gain.

20 25. A traffic control processing device for managing available bandwidth based upon bandwidth metrics from a scheduler, comprising:

112 a utilization module configured to determine utilization associated with the destination site based upon the received bandwidth metrics;

an error calculation module configured to compute a difference between the determined utilization and a target utilization;

a gain and filtering module configured to compute a correction value based upon the difference between the determined utilization and the target utilization, the correction value being associated with the destination site; and

an adder configured to output a control value based upon a reference control value and the correction value.

26. The device according to Claim 25, wherein the reference control value is based upon a current limit value that is active during a measurement period of the bandwidth metrics, the current limit value being received by the traffic control processing logic.

27. The device according to Claim 26, wherein the gain and filtering module generates a control sequence number corresponding to the control value.

28. The device according to Claim 27, wherein the scheduler reads the control sequence number associated with the measurement period, the control sequence number being included in a metric message that contains the bandwidth metrics.

29. The device according to Claim 27, wherein the traffic control processing logic further comprises:

a control storage configured to store the control value, the control value being indexed by the control sequence number.

30. The device according to Claim 27, wherein the reference control value is stored in the control storage, the reference control value having an index based upon a round-trip control time (RTCT), the RTCT being a time between sending of the control value and a subsequent control value.

31. The device according to Claim 30, wherein the RTCT includes propagation delay, message transmit/receive delays, and message processing delay.

32. The device according to Claim 30, wherein the control value is sent to the traffic control processing logic on a predetermined interval, the index being based upon a ratio of the RTCT and the predetermined interval.

33. The device according to Claim 25, wherein the correction value is further
5 based upon a split gain that specifies at least one of a first gain and a second gain based upon the computed difference.

34. The device according to Claim 25, wherein the correction value is further based upon a unity gain.

35. A computer-readable medium carrying one or more sequences of one or
10 more instructions for controlling bandwidth allocations, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

receiving bandwidth metrics for a destination site from a scheduler;

determining utilization associated with the destination site based upon the
15 received bandwidth metrics;

computing a difference between the determined utilization and a target utilization;

computing a correction value based upon the difference between the
determined utilization and the target utilization, the correction value being associated
20 with the destination site;

outputting a control value based upon a reference control value and the correction value; and

allocating bandwidth based upon the control value.

36. The computer readable medium according to Claim 35, wherein the reference control value in the outputting step is based upon a current limit value that is active during a measurement period of the bandwidth metrics.

37. The computer readable medium according to Claim 35, further comprising
5 computer-executable instructions for causing the computer system to perform the steps of:

correlating the control value with the received bandwidth metrics.

38. The computer readable medium according to Claim 35, further comprising
10 computer-executable instructions for causing the computer system to perform the steps of:

generating a control sequence number corresponding to the control value.

39. The computer readable medium according to Claim 35, further comprising
computer-executable instructions for causing the computer system to perform the steps of:

15 storing the control value, wherein the control value is indexed by the control
112 sequence number.

40. The computer readable medium according to Claim 35, further comprising
computer-executable instructions for causing the computer system to perform the steps of:

20 wherein the reference control value in the outputting step is stored in a control storage, the reference control value having an index based upon a round-trip control time (RTCT), the RTCT being a time between sending of the control value and a subsequent control value.

41. The computer readable medium according to Claim 40, wherein the RTCT includes propagation delay, message transmit/receive delays, and message processing delay.

42. The computer readable medium according to Claim 40, further comprising
5 computer-executable instructions for causing the computer system to perform the steps of:

sending the control value on a predetermined interval, the index being based upon a ratio of the RTCT and the predetermined interval.

43. The computer readable medium according to Claim 40, further comprising
10 computer-executable instructions for causing the computer system to perform the steps of:

sending the control value to a traffic control processing logic that is located remotely from the scheduler.

44. The computer readable medium according to Claim 35, wherein the
15 correction value in the step of computing the correction value is further based upon a split gain that specifies at least one of a first gain and a second gain based upon the computed difference.

45. The computer readable medium according to Claim 35, wherein the
20 correction value in the step of computing the correction value is further based upon a unity gain.